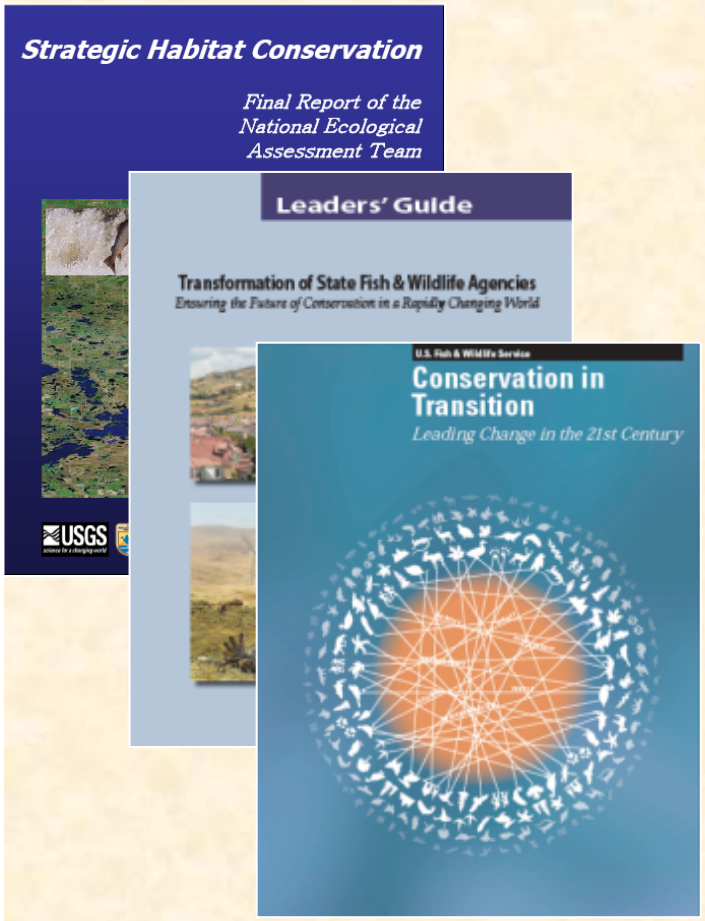
Conservation In Transition:
Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife



http://www.fws.gov/landscape-conservation/shc.html

Southeast Region Workshop
Moving Forward With Landscape-scale Conservation
Memphis, TN October 2 – 3, 2012

Conservation In Transition:
Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife

Objectives:

- A Closer Look At The "Why"
- Defining The "What": A Conservation Landscape of The Future
  - SHC: SECAS, LCCs, The Role of "Surrogate Species"
- And "How": Building On Our Solid Foundation of Science and Land Management

Southeast Region Workshop
Moving Forward With Landscape-scale Conservation
Memphis, TN October 2 – 3, 2012

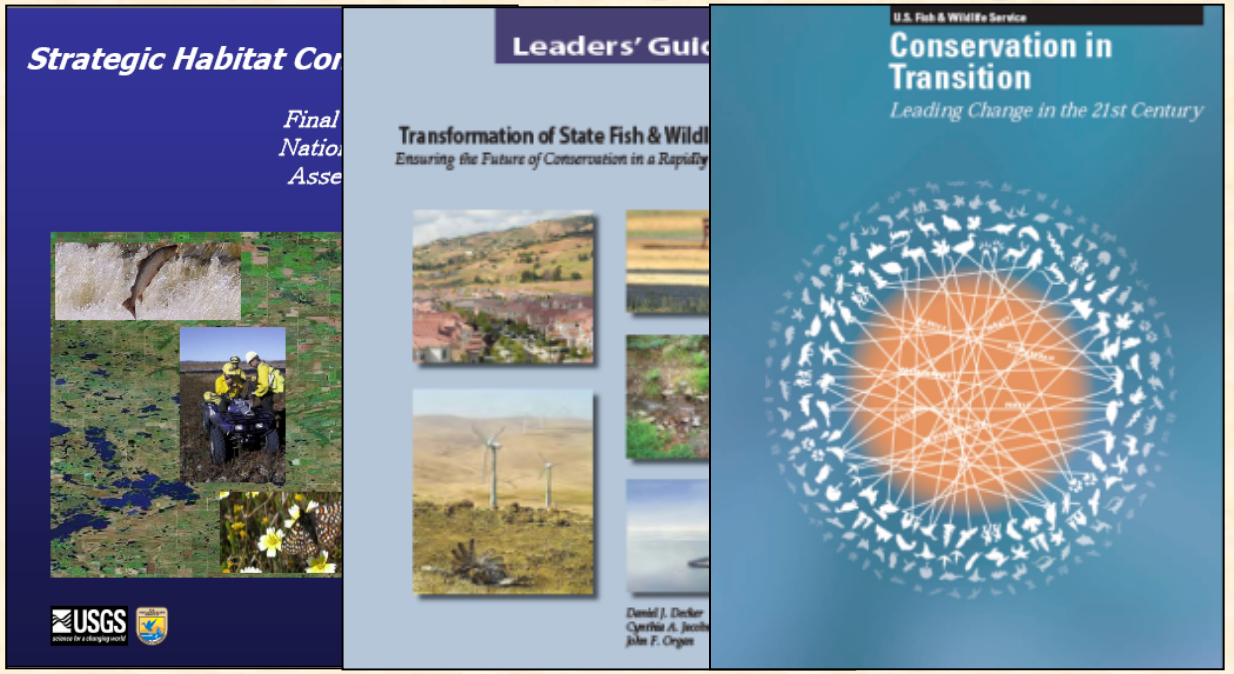
Drivers of Change

"The world we're in today is undergoing as rapid a change as any in the history of mankind. Everything necessary to support the world's population is changing at incredible rates causing increased pressure on the planet, environment, society and individuals in general," Admiral Samuel J. Locklear, Commander Allied Joint Force Command, Naples. 2011

"The conservation community faces unprecedented issues of scale, pace, and complexity in sustaining our Nation's natural resources."

"The conservation challenges of the 21st Century represent a force of change more far-reaching and consequential than any previously encountered."

Keeping Pace With Accelerating Change



Are Not The F&W Agencies of Yesterday

Fish & Wildlife Agencies Of Today…

Nor Will They Be The F&W Agencies of Tomorrow

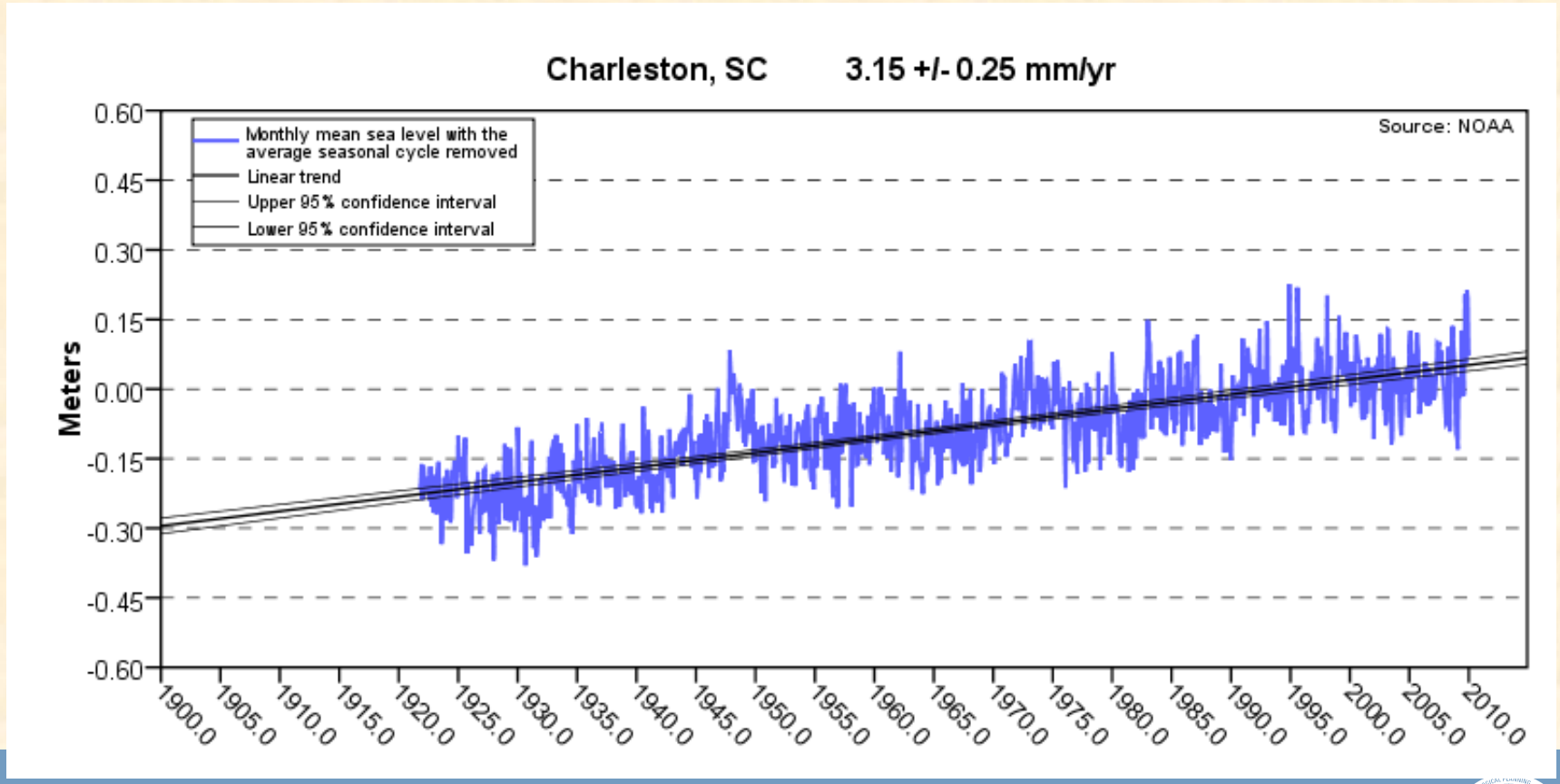
Cape Romain National Wildlife Refuge

coastal South Carolina north of Charleston.

Stories from the field . . . .contrasting the traditional and new challenges

U.S. Fish & Wildlife Service
Conserving the Nature of America

Sea Level Rise near Cape Romain NWR since 1923



Cape Romain NWR – Bulls Island

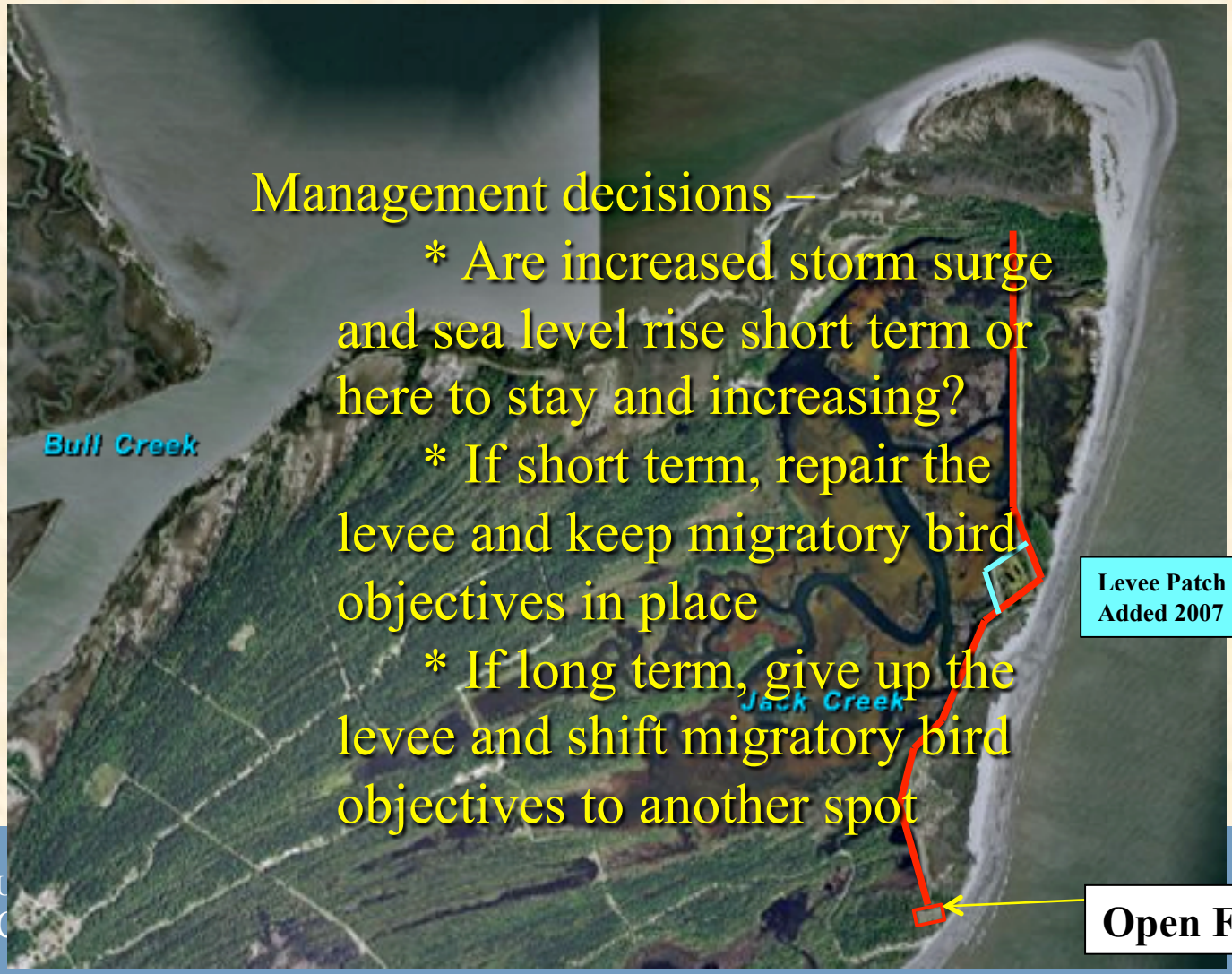
Jacks Pond Levee 1953

Cape Romain NWR – Bulls Island

Jacks Pond Levee 1999

Cape Romain NWR – Bulls Island
Jacks Pond Levee 2010

Cape Romain NWR – Bulls Island
Jacks Pond Levee 2010



Management decisions –

* Are increased storm surge and sea level rise short term or here to stay and increasing?
* If short term, repair the levee and keep migratory bird objectives in place
* If long term, give up the levee and shift migratory bird objectives to another spot

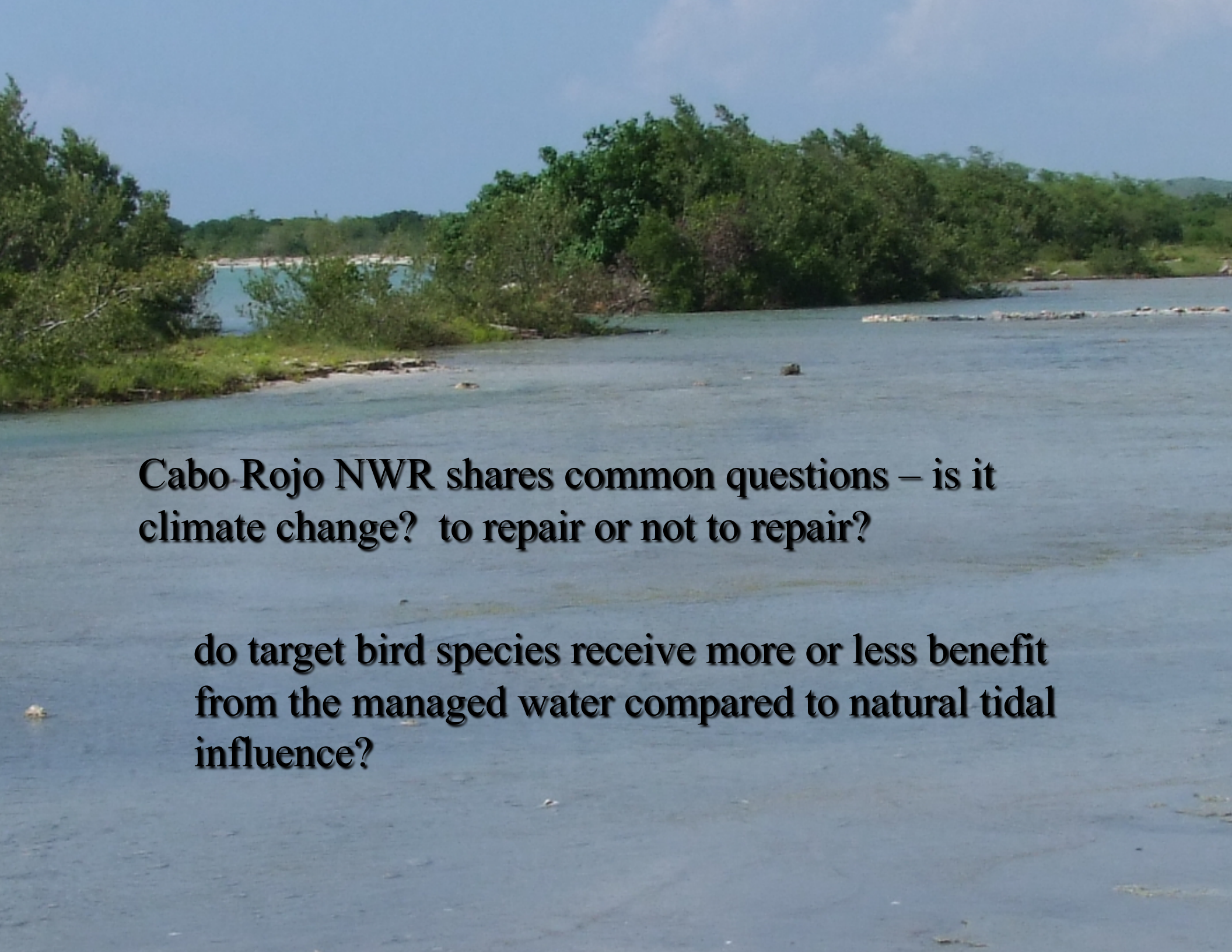
Cabo Rojo NWR
Puerto Rico

- First Caribbean site designated as Western Hemisphere Shorebird Reserve Network (WHSRN) site
- Pre-historically to present, managed for salt extraction but now co-managed with NWR
- One connection to sea, water control and salt extraction sustainable and in place for at least 500 years.

Cabo Rojo NWR

Salt collection frames

Beach and dune destruction rapid in last 2 decades and soon will overcome dune



Cabo Rojo NWR shares common questions – is it climate change? to repair or not to repair?

do target bird species receive more or less benefit from the managed water compared to natural tidal influence?

Tennessee National Wildlife Refuge

- Contribution to MAV overwinter waterfowl objectives

- Invasive alligator weed impacts habitat management capacity

Invasive species

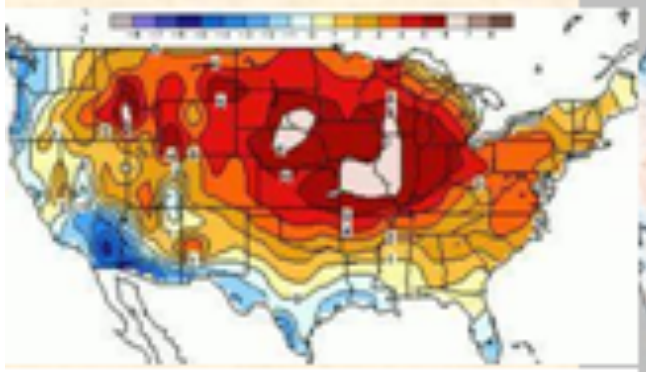
- Alligator Weed
- Increase in density a function of fewer consecutive freeze days?
- Annual flood regime?
- Climate change?

- All pertinent questions based on solid, long term observations, by smart land managers and biologists . . . .
  - What about the landscape context of their management concerns questions?

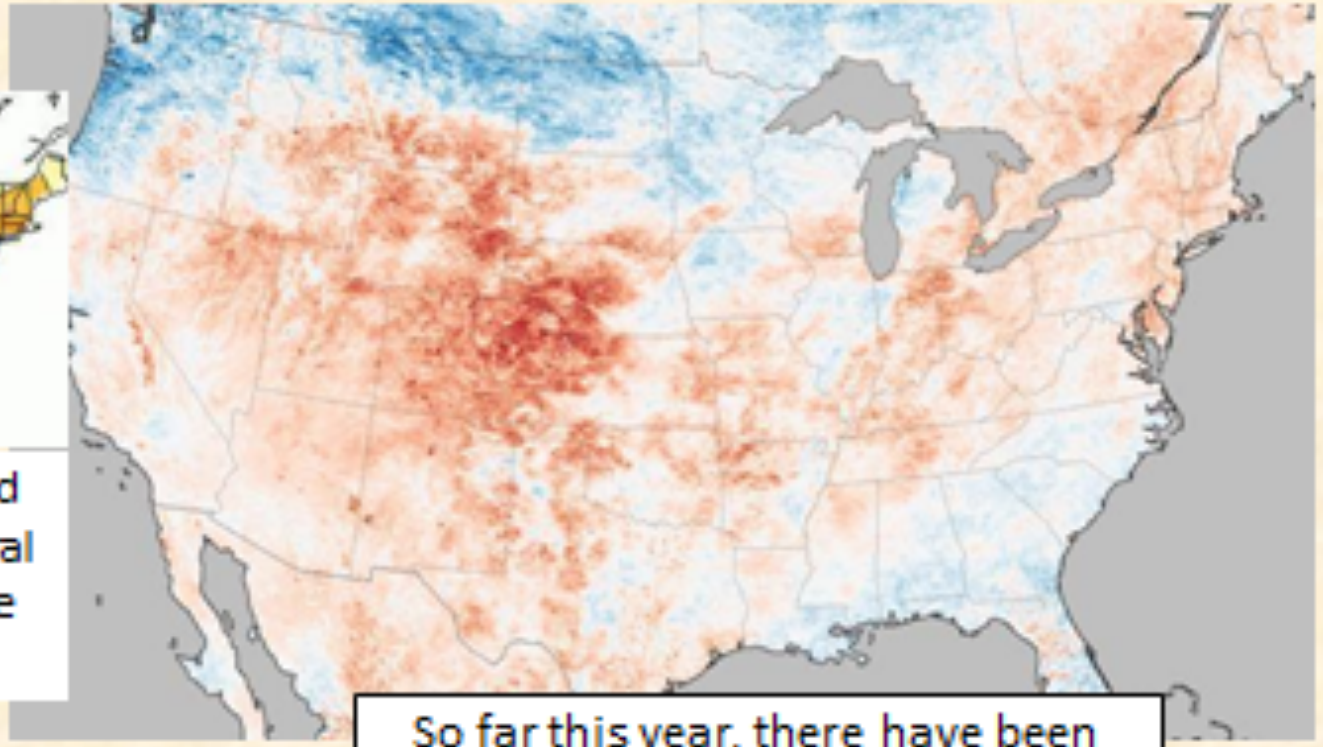
Changing Climate

Heat Wave Sweeping Across the United States June 26, 2012. (NASA)

Read more: http://www.foxnews.com/scitech/2012/07/03/what-behind-record-heat/#ixzz22KIX2MJg

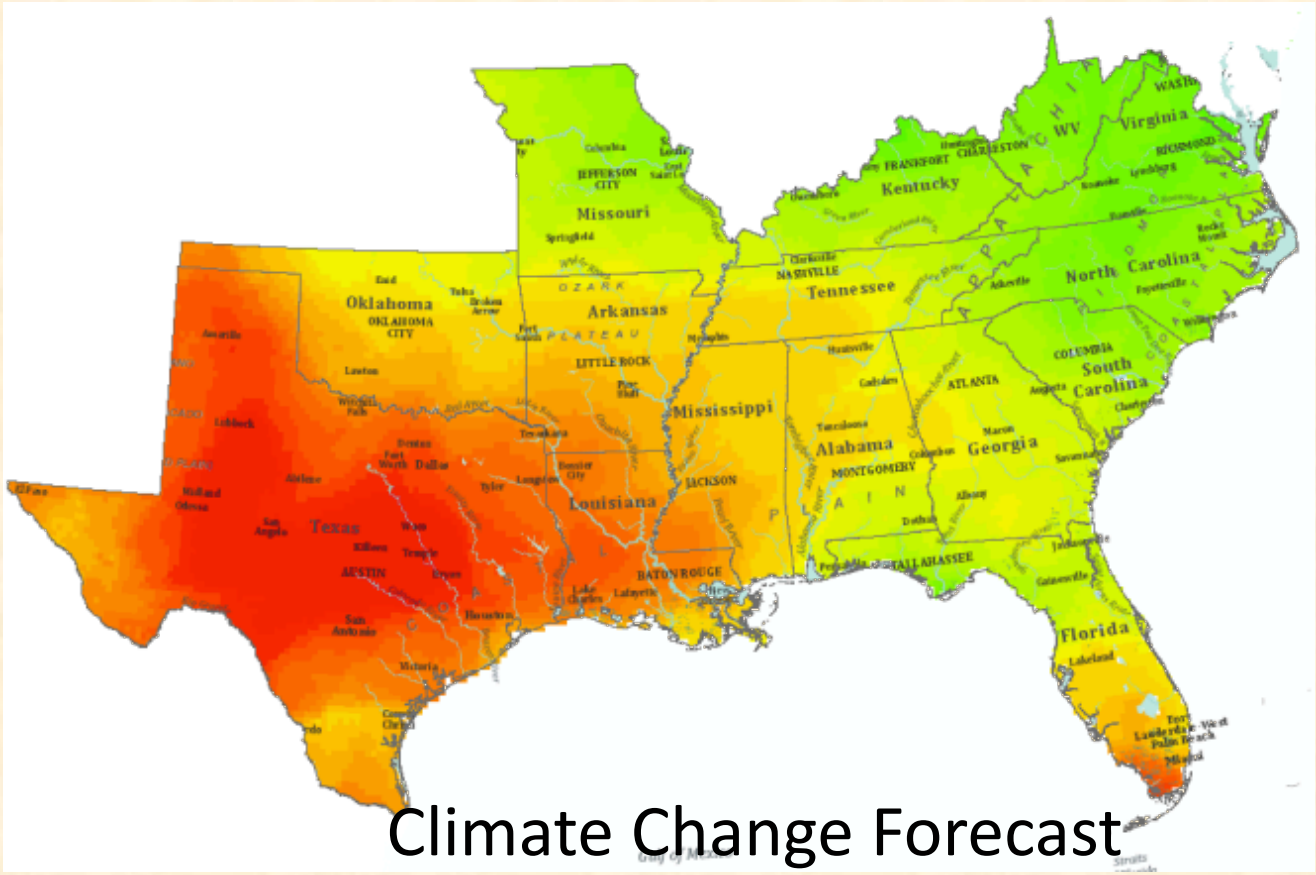


The darker orange, red and white shadings in the central U.S. are the farthest above average. NOAA graphic



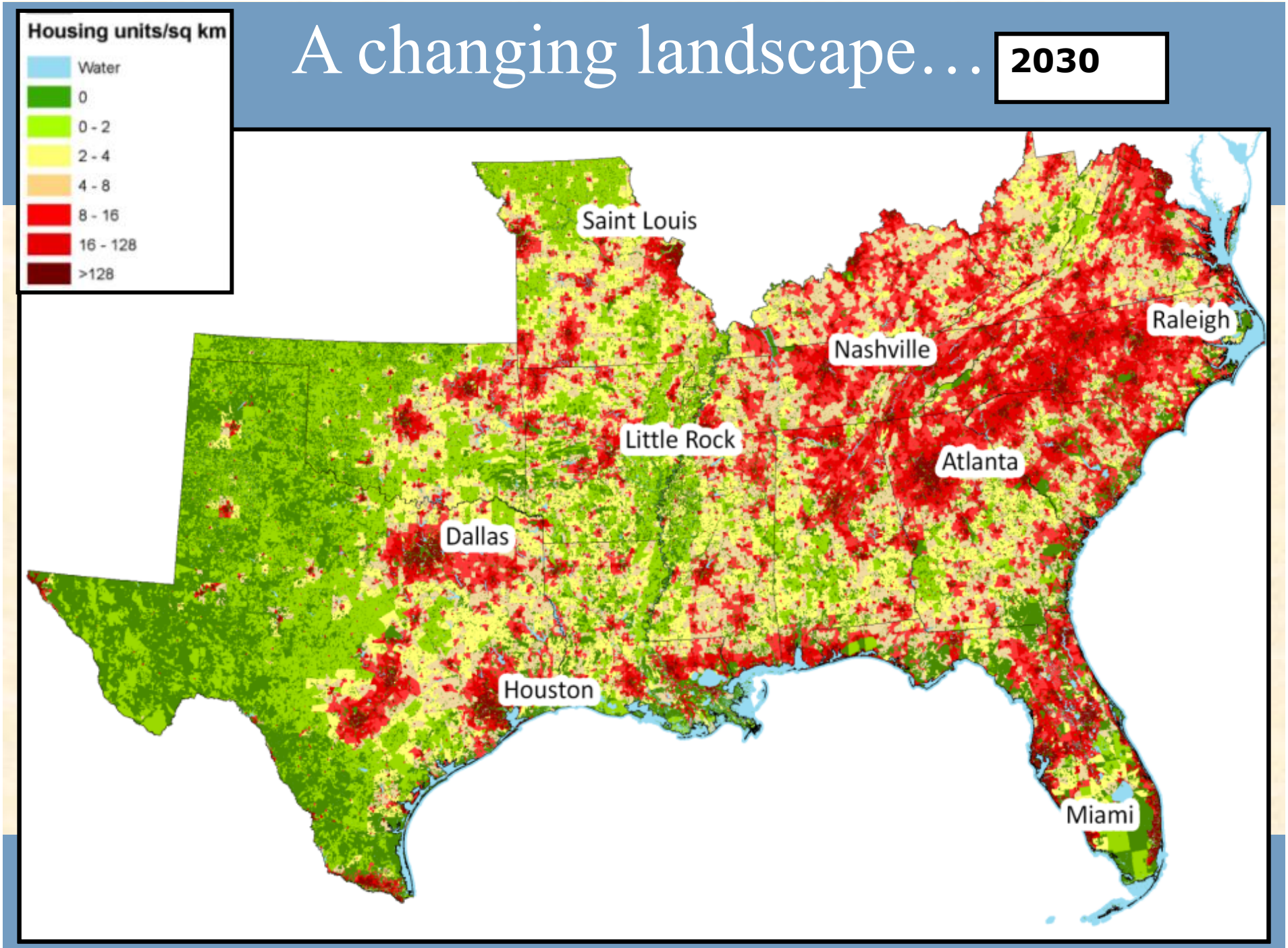
So far this year, there have been 40,113 high temperature records set or tied, compared with just 5,835 cold records

Changing Climate



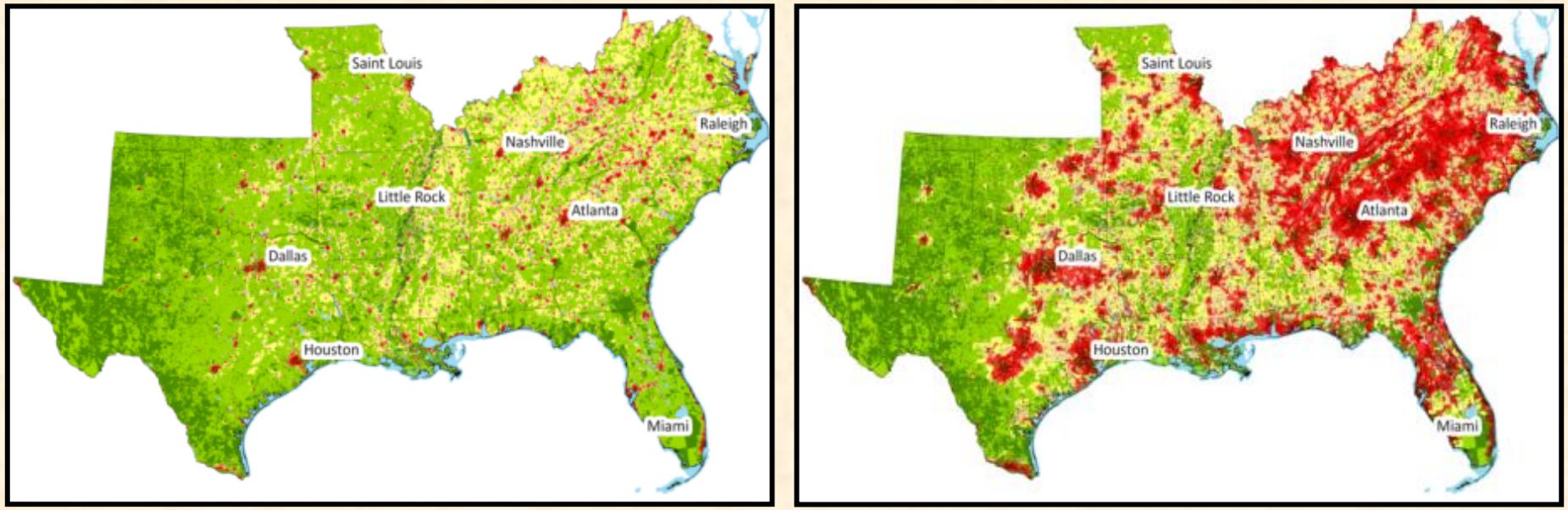
Climate Change Forecast

A changing landscape…



Landscape Changers Impacting The Future Of Fish & Wildlife Conservation

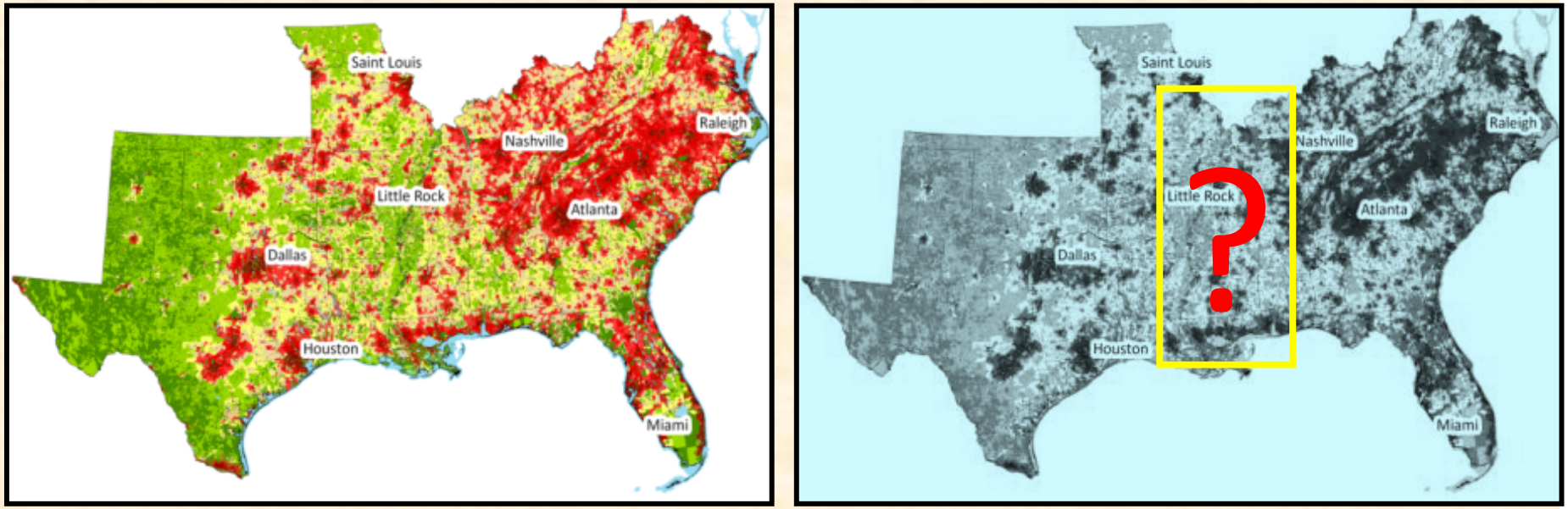
If I knew then what I know now??



Urban Growth: 1940 - 2030

Landscape Changers Impacting The Future Of Fish & Wildlife Conservation

We have a choice: remain reactive or get ahead of the curve –
what tools are available or can be developed to "see" tomorrow?

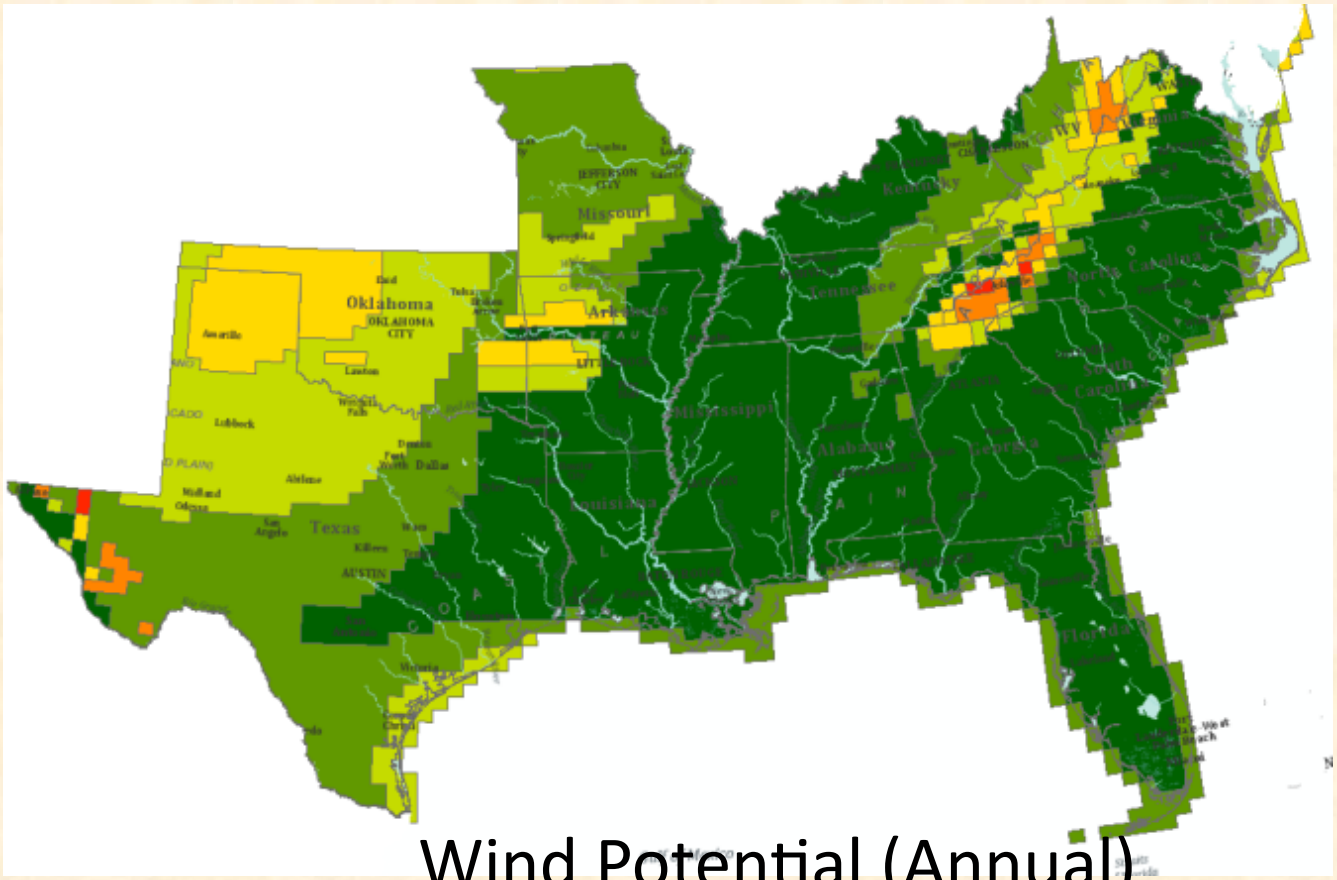


Urban Growth: 1930 – 20xx

Global Energy Consumption and Dynamics

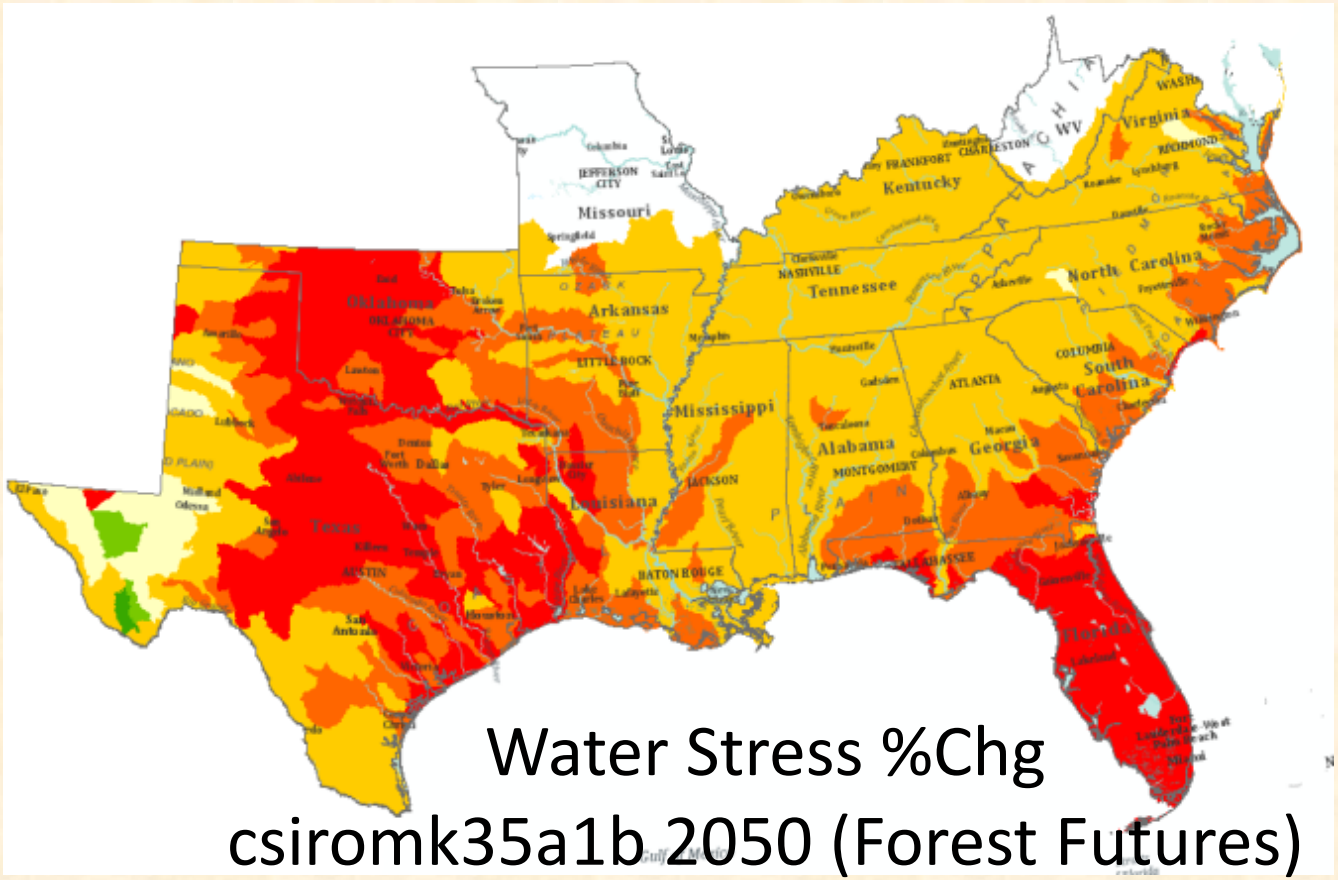
- Demand for electricity in US has increase 136% since 1970.
- Global demand for energy is estimated to increase 35% by 2035.
- In 2009, shale gas made up 14% of the US gas supply produced; expected to increase to 45% by 2035.
- Natural gas from unconventional sources will satisfy more than 50% of United States demand by 2030.
- Wind energy is one of the fastest growing sources of energy in the world. In US 2010 ~2.3%. By 2030 ~20% (USDOE)
- Solar has been expanding at a average pace of 40% per year.
- Solar energy could grow to meet 10% of the nation's power needs by 2025.

Global Energy Consumption and Dynamics

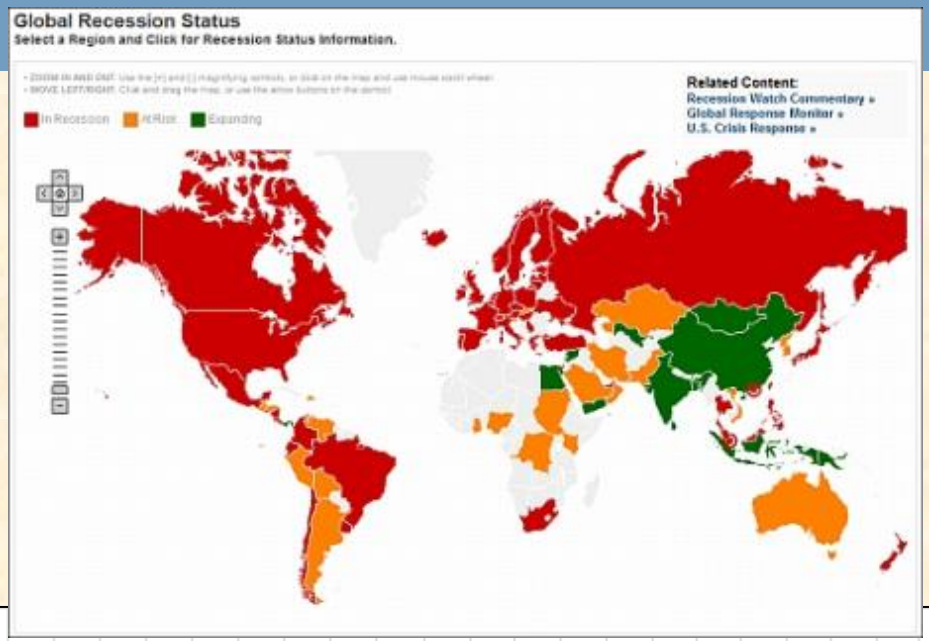


Wind Potential (Annual)

Global Energy Consumption and Dynamics



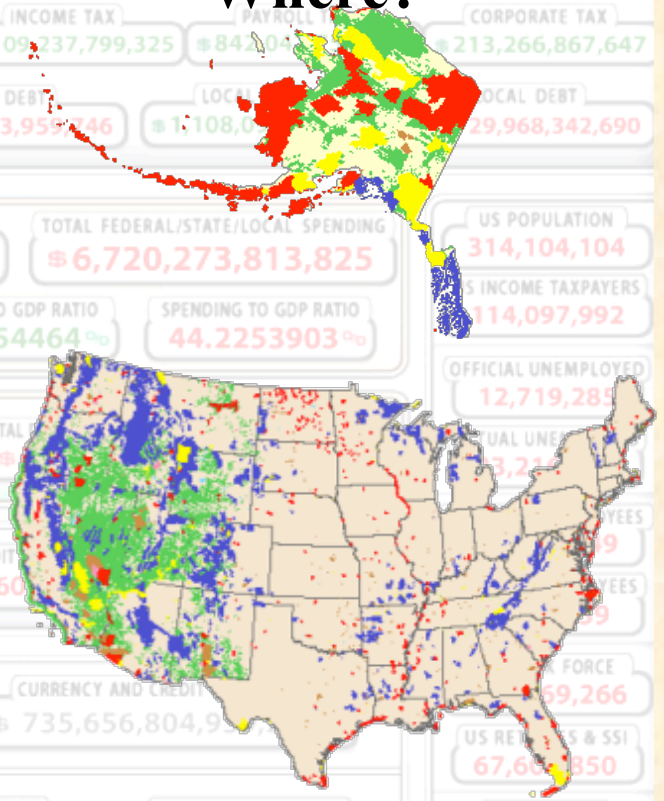
Economy & Fiscal Accountability



Economy & Fiscal Accountability

How Much Is Needed?
How Much More?
Where?

Bureau of Indian Affairs	55,700,000
Bureau of Land Management	269,699,049
Bureau of Reclamation	2,738,440
Department of Defense	27,551,073
US Forest Service	233,718,572
US Fish and Wildlife Service	105,648,322
National Parks Service	82,543,539
Tennessee Valley Authority	813,166
Others (e.g., NASA, DOE)	2,506,664
Natural Resource Conservation Service	34,199,979
Farm Services Agency	33,371,379



848,490,183

U.S. Fish & Wildlife Service
Conserving the Nature of America

What: Foundation Concepts of SHC

- **Conservation Target:** Landscapes that can sustain populations of fish and wildlife resources.
  - How Much, How Much More, and Where?

- **Science:** As a body of knowledge and as a method of discovery:
  - Learning Becomes an explicit objective of management.

- **Landscape:** Land management occurs at the site scale; yet ecological outcomes are system dependent, operating on processes manifested at broader spatial and temporal scales.
  - Addressing the Challenges of Scale

- **Interdependence:** Goals and objectives of functional landscapes to sustain fish and wildlife exceed the operational reach of individual programs, agencies, and organizations
  - Collaboration++

Collaboratively Defining a Future Conservation Landscape in the Southeastern US

Southeast Conservation Adaptation Strategy

A Unifying Response Commensurate with the Growing Challenges

Ed Carter, Executive Director
Tennessee Wildlife Resources Agency

Southeast Natural Resource Leadership Group
May 23, 2012
Chattanooga, Tennessee

Critical Elements of an Adaptation Strategy

1. Explicit Objectives and Measures of Success (Conservation Targets)
    - Species, habitats, ecological processes

Its Not About A “Plan”
Its About A Way of Working

The "How": Our mission does not change, our way of looking at the world has to change

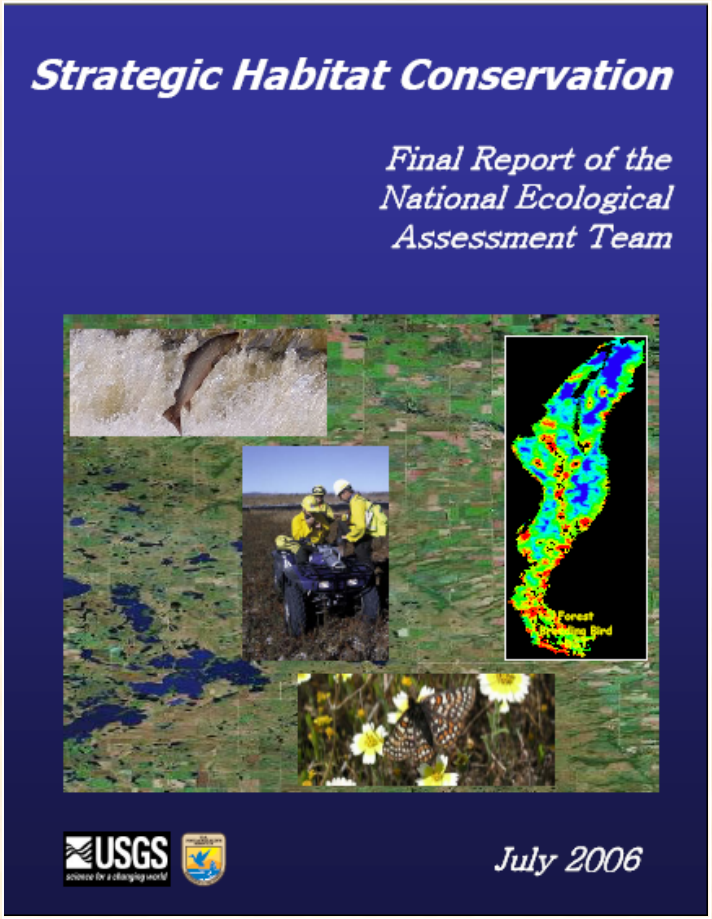
FWS Mission: Working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

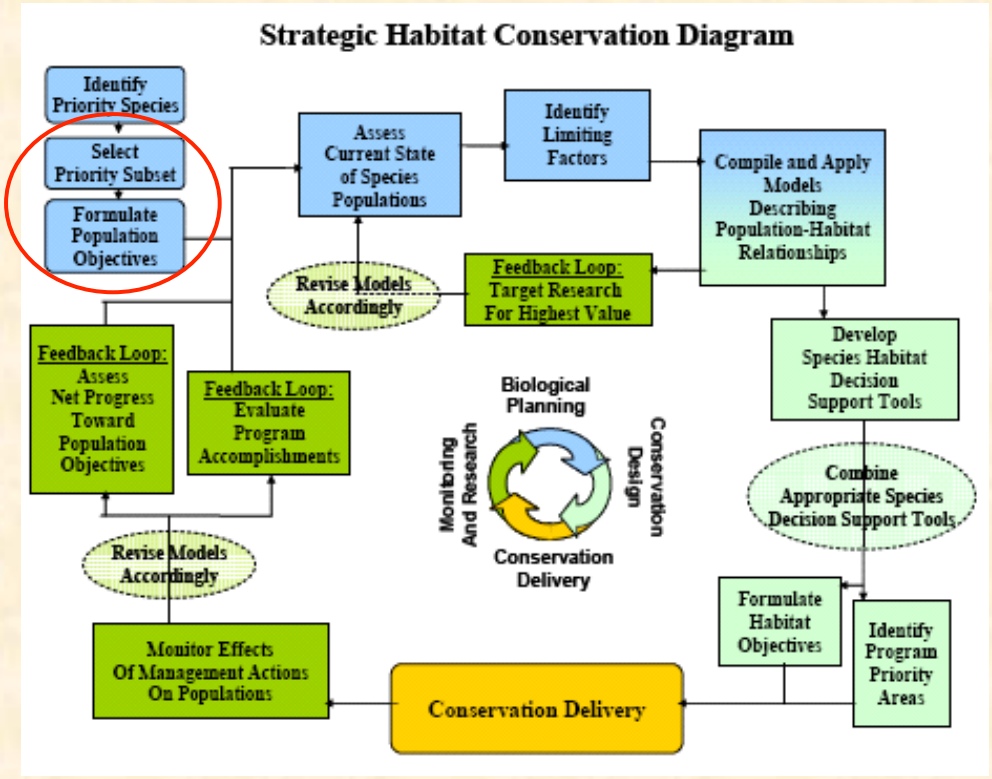
Conservation Objective: Characterize and maintain functional landscapes capable of supporting self-sustaining fish, wildlife, and plant populations.

Functioning Landscapes: lands and waters with the properties and elements required to support desirable populations of fish and wildlife, while also providing human society with desired goods and services, including food, fiber, water, energy, and living space.

Dan Ashe, Director
US Fish & Wildlife Service
2012

Conservation In Transition:
Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife





U.S. Fish & Wildlife Service
Conserving the Nature of America

Collaboratively Defining a Future Conservation Landscape in the Southeastern US

1. Explicit Objectives and Measures of Success (Conservation Targets)
   - Species, habitats, ecological processes

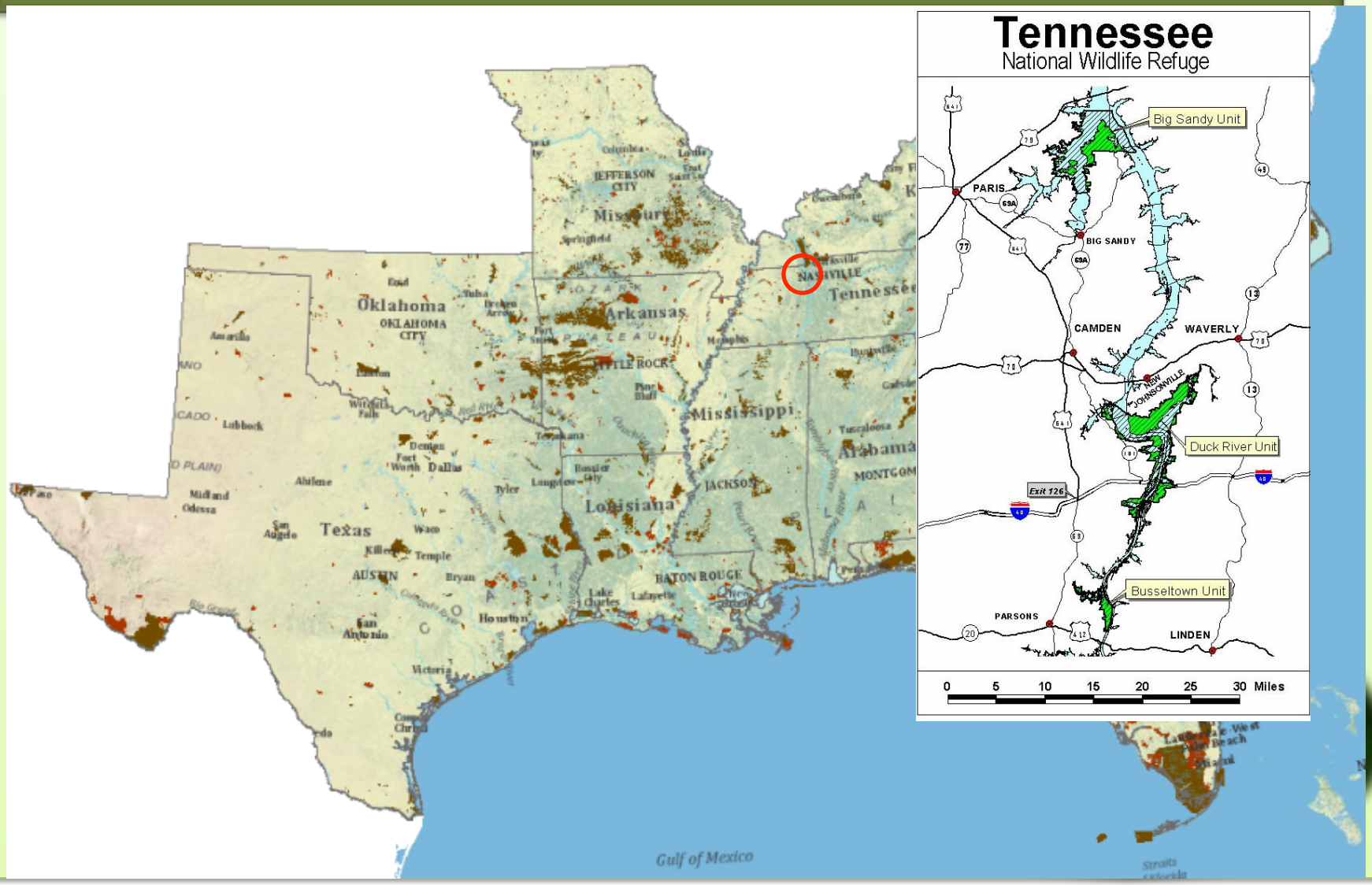
* can the use of surrogate species help us "see" the changes?

* performance and accountability of investments?
   - BIOLOGICAL OUTCOMES

How Much, How Much More, and Where?

Building On The Foundation

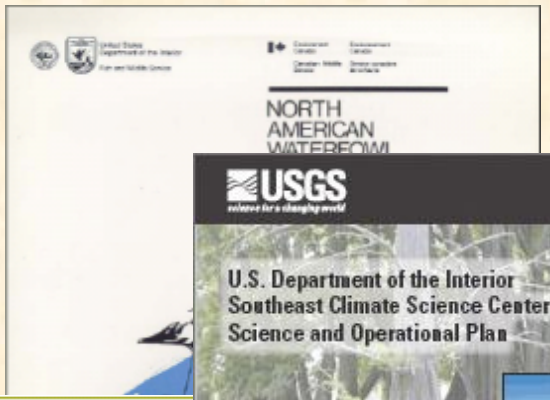
Current Conservation Estate

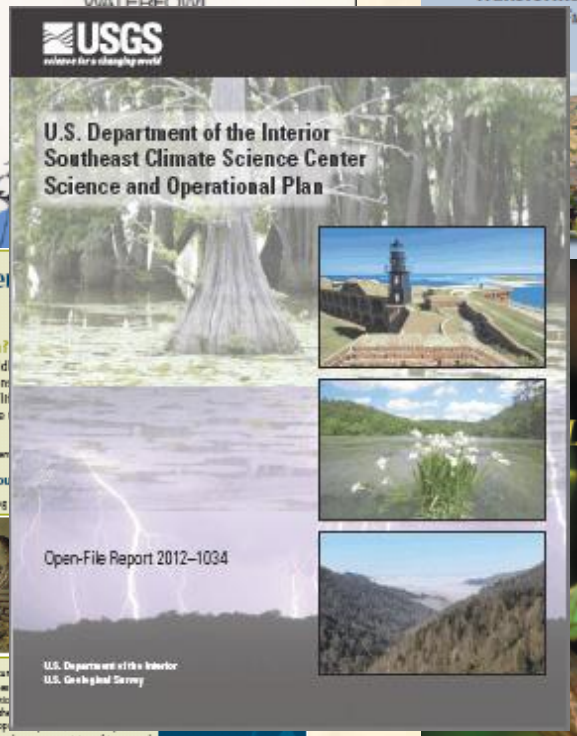


Are Not The Conservation Agencies of Yesterday

Conservation Agencies Of Today…

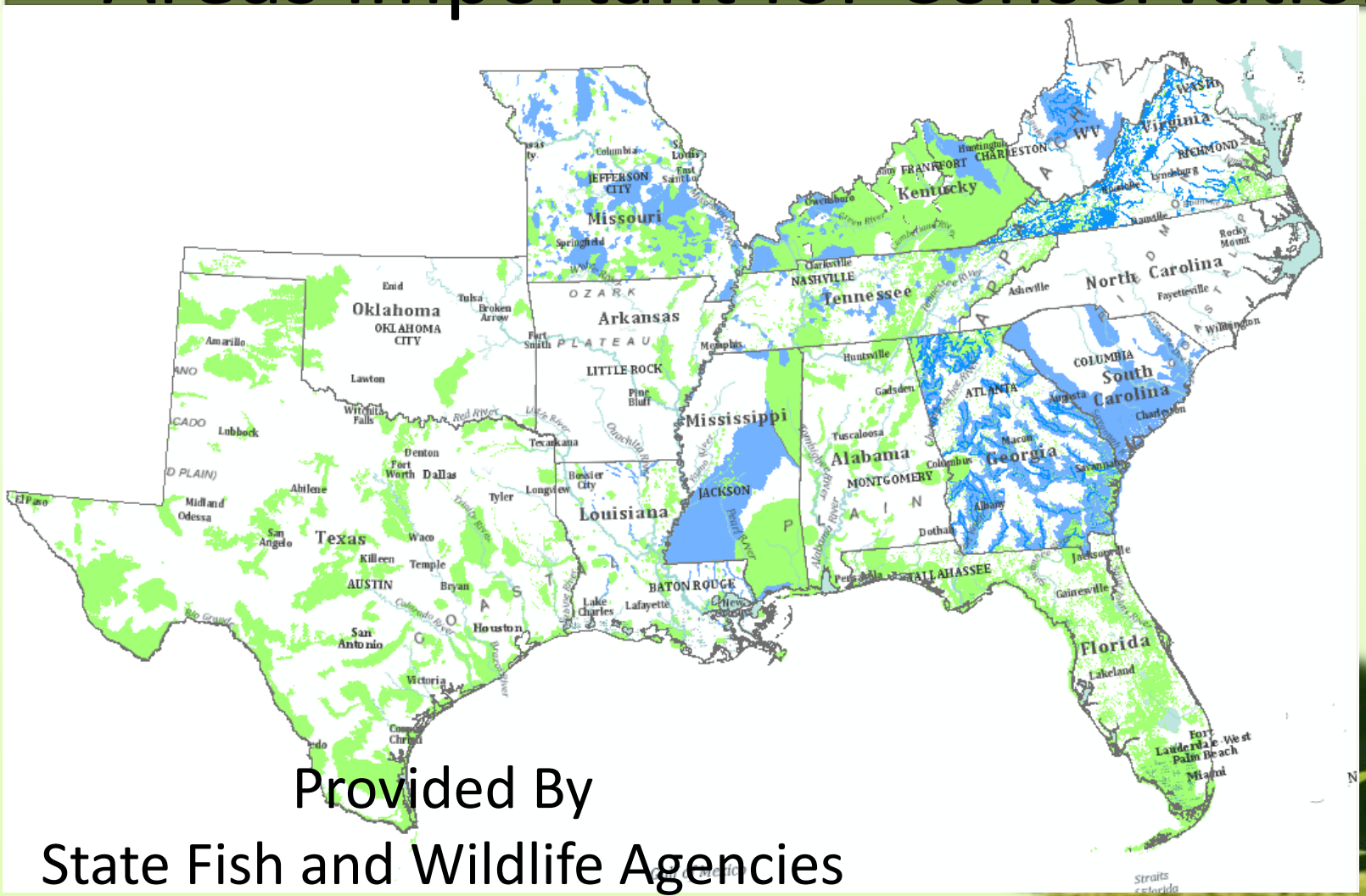
Nor Will They Be The Conservation Agencies of Tomorrow





An Incomplete & “Un-proofed” Snapshot of

Areas Important for Conservation

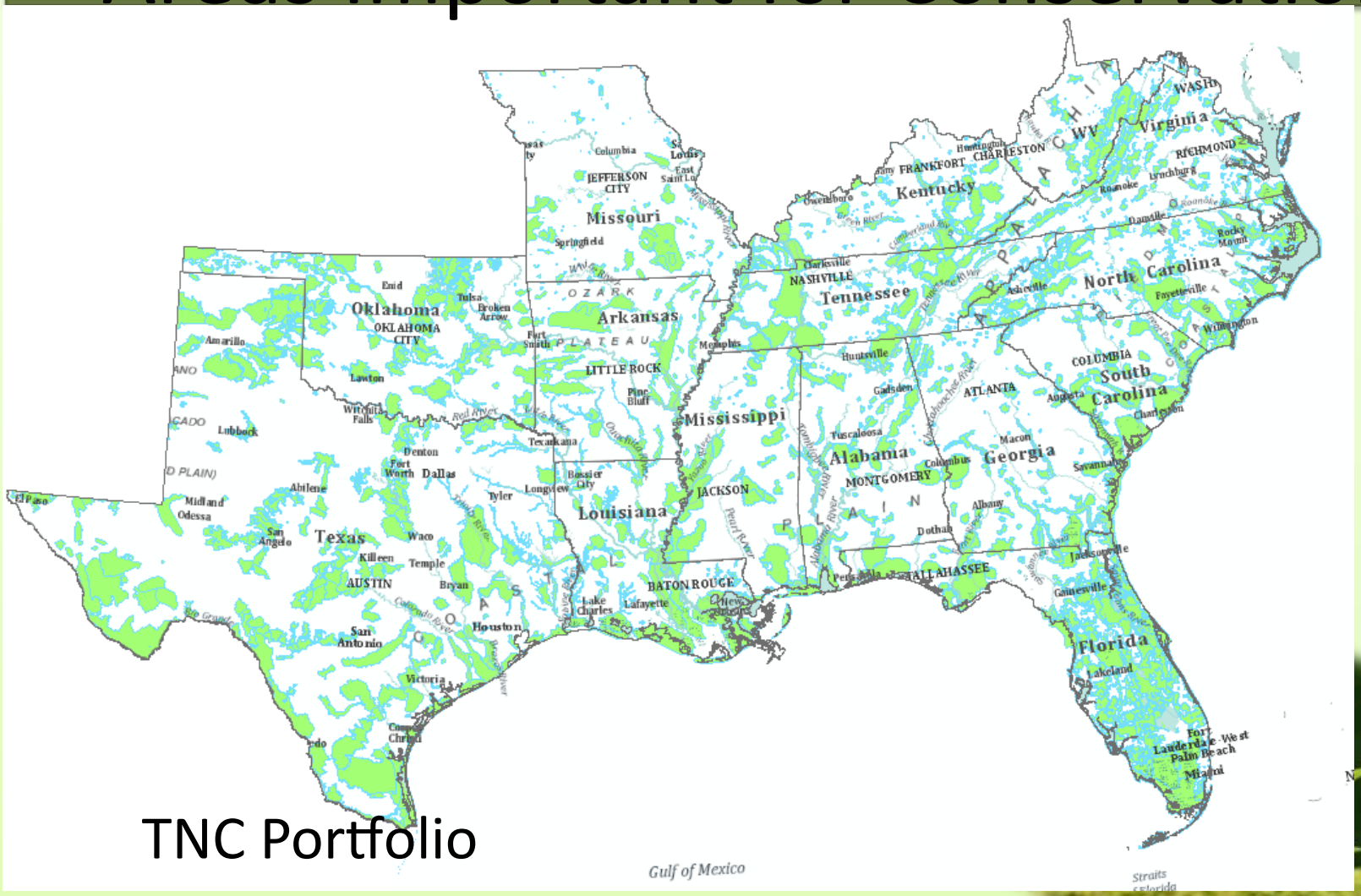


Provided By

State Fish and Wildlife Agencies

An Incomplete & “Un-proofed” Snapshot of

Areas Important for Conservation



TNC Portfolio

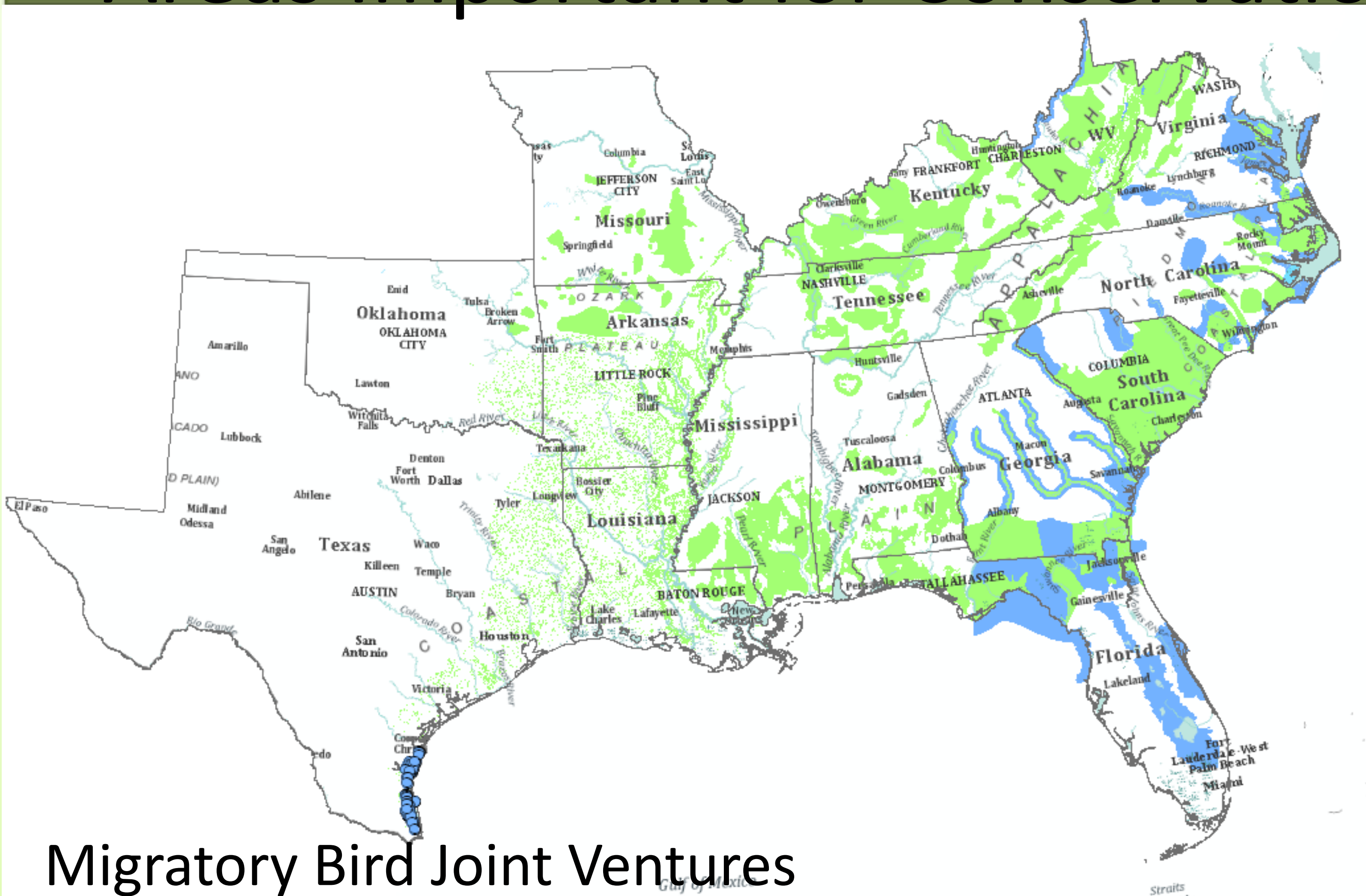
An Incomplete & “Un-proofed” Snapshot of

Areas Important for Conservation

Southeast Aquatic Resource Partnership

An Incomplete & “Un-proofed” Snapshot of

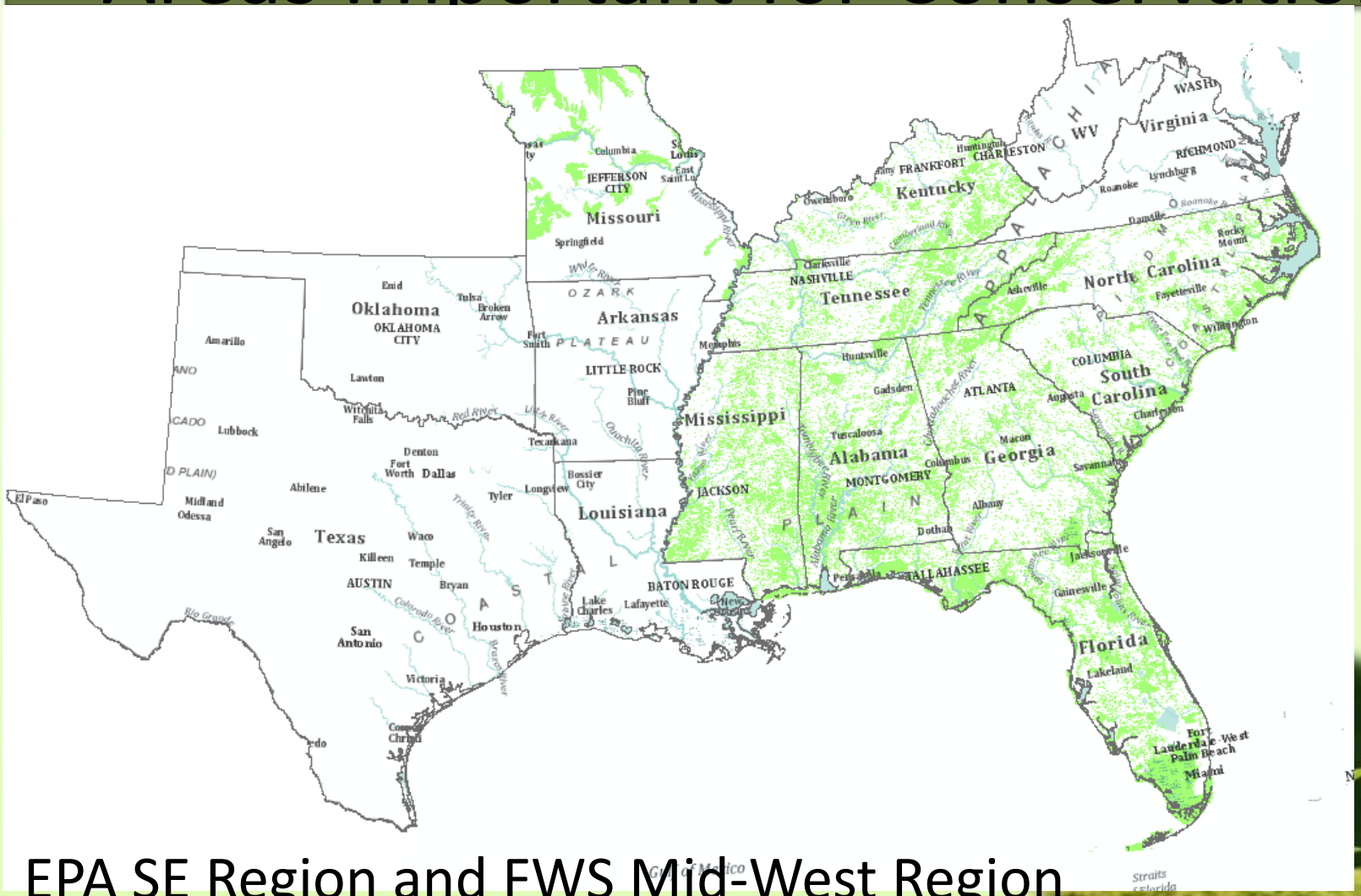
Areas Important for Conservation



Migratory Bird Joint Ventures

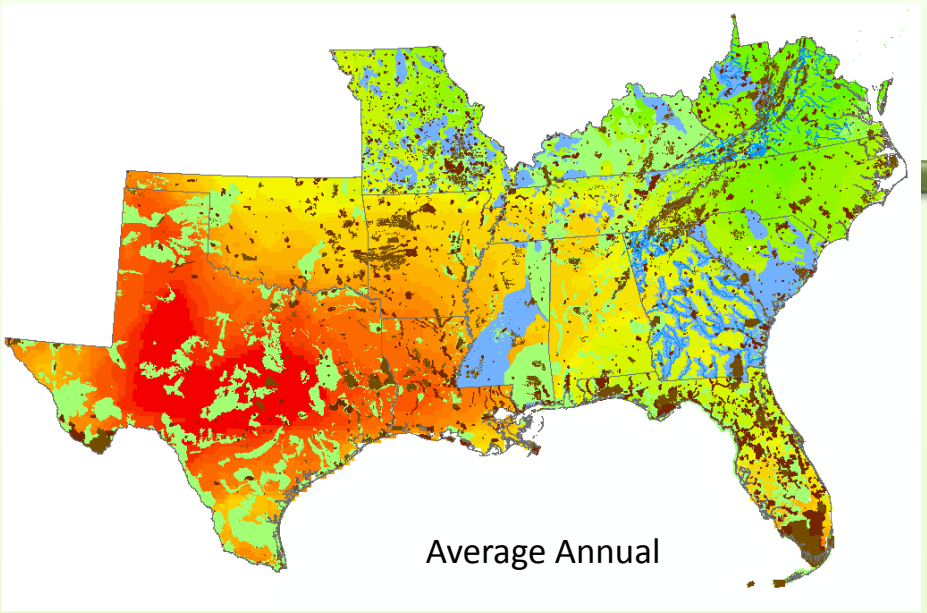
An Incomplete & “Un-proofed” Snapshot of

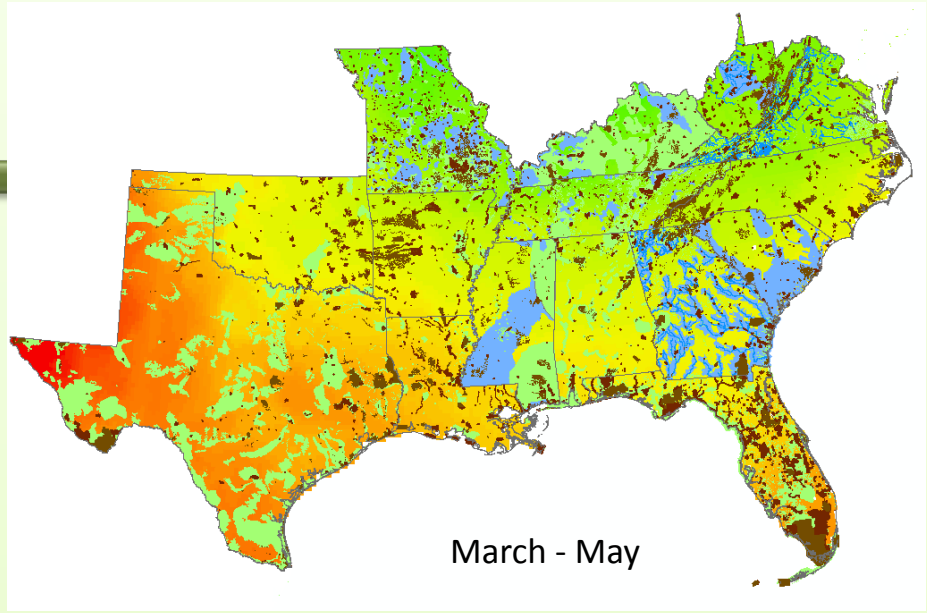
Areas Important for Conservation

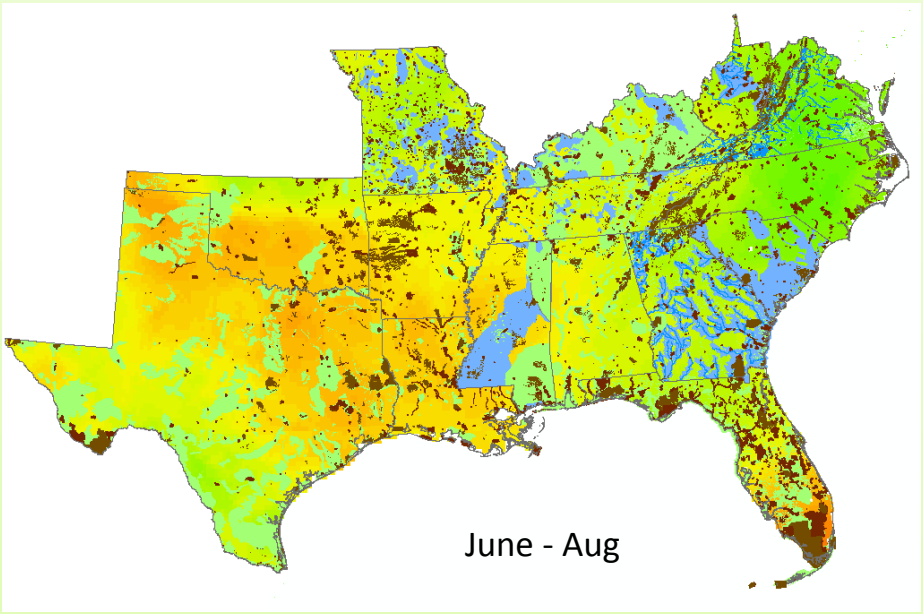


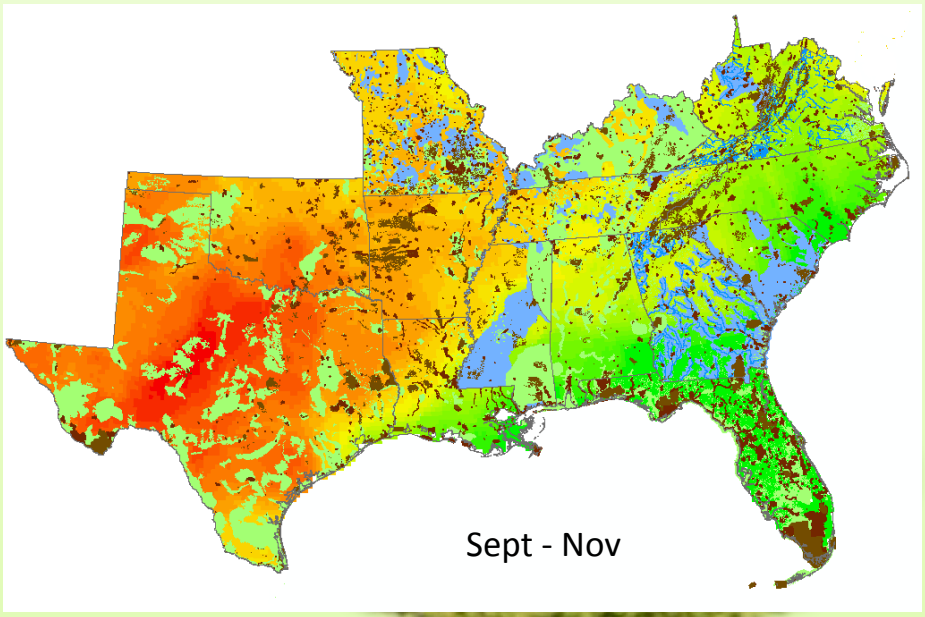
EPA SE Region and FWS Mid-West Region

Climate Change & Areas Important to Conservation

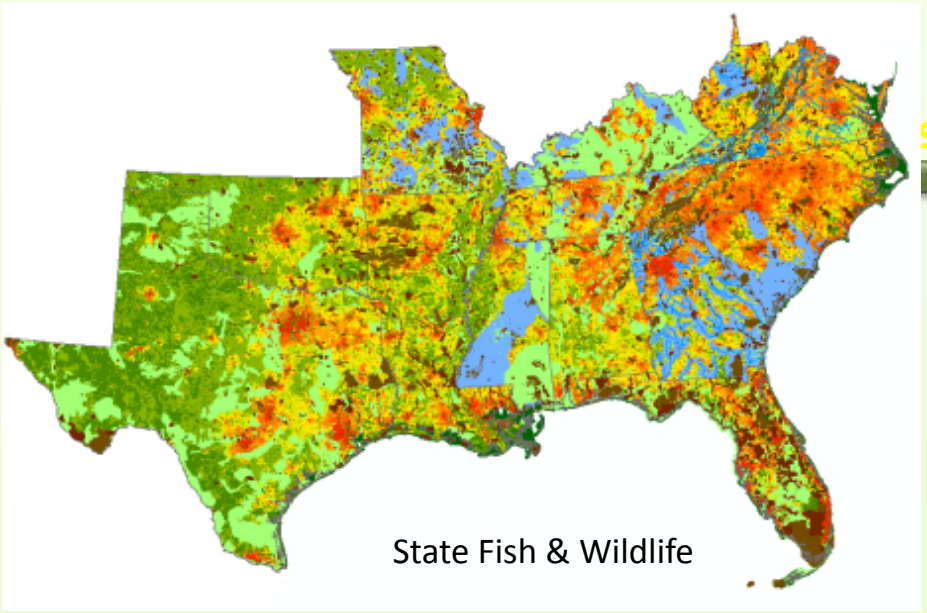




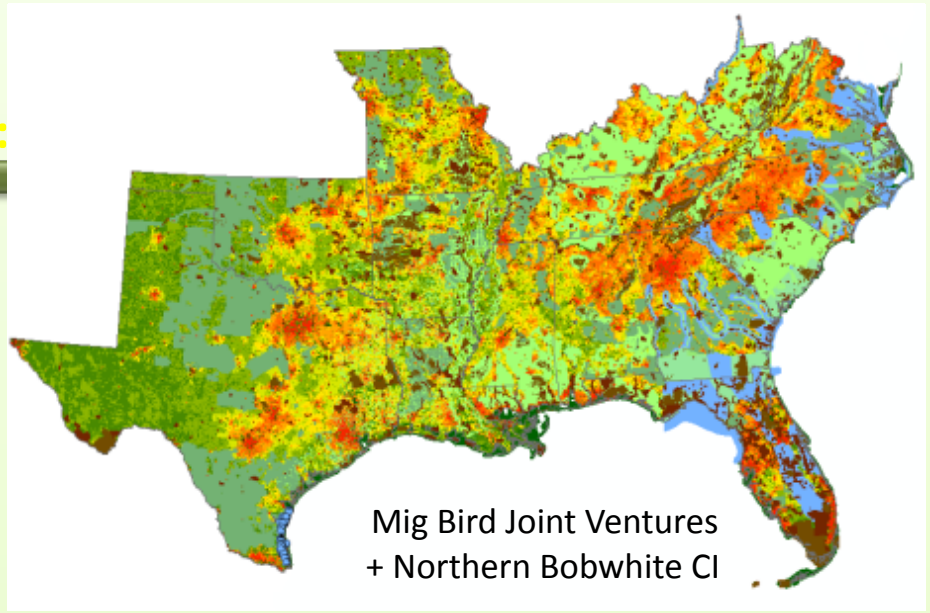




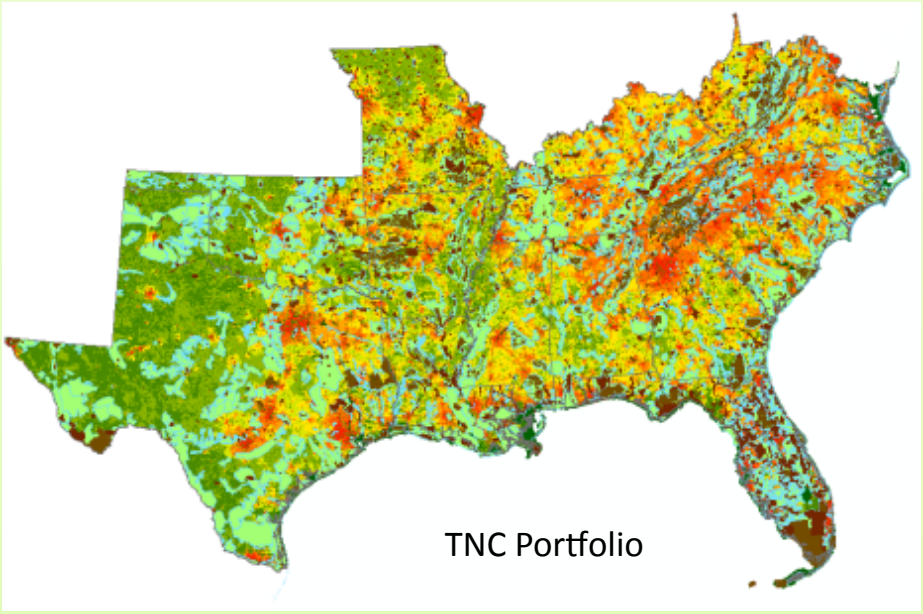
Urban Growth & Areas Important to Conservation



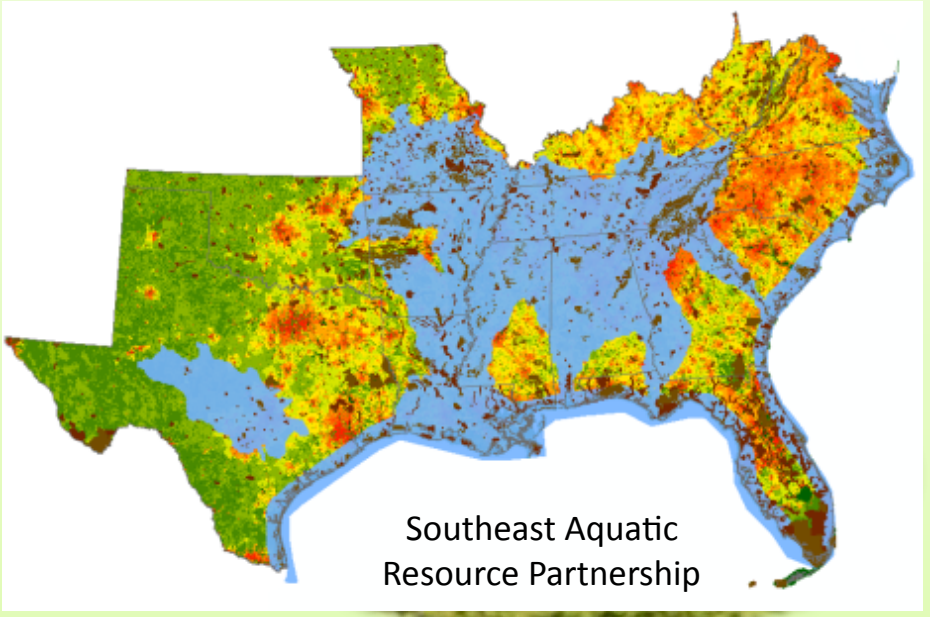
State Fish & Wildlife



Mig Bird Joint Ventures
+ Northern Bobwhite CI



TNC Portfolio



Southeast Aquatic
Resource Partnership

Conservation In Transition:
Adapting To Meet The Growing Challenges In Sustaining Fish & Wildlife

"We must put our work in the context of landscape sustainability…

It makes us Think Bigger, It makes us Better.

We must know why we do what we do.

We must be nimble, able to adapt to remain relevant.

Dan Ashe, Director
US Fish & Wildlife Service
2012

Why: To respond to unprecedented threats at appropriate scale with new technologies.

What: Strategic Habitat Conservation and biological outcomes, can we "see" change in the system more quickly and clearly.

How: Pursuing our mission, based on our existing knowledge and tools for management, but integrating at a different scale.